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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/868,244  
Filing Date: 7/10/01  
Appellant(s): SIEVANEN

**MAILED**

**JAN 16 2007**

**Group 3700**

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Eric Franklin  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 9/29/06 appealing from the Office action mailed 1/27/06.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

4,337,290	Kelly et al	6-1982
4,320,898	Brunst et al.	3-1982
4,557,961	Gorges	12-1985
5,106,668	Turner et al.	4-1992
RE 35,778	Sterling et al	4-1998

**Materials Science and Engineering, by William D. Callister (New York: John Wiley & Sons, Inc) , pgs. 541 and 542, 1997.**

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

The rejection under 112, 1<sup>st</sup> paragraph has been removed from consideration of this appeal since claims 26 and claim 28 were inadvertently omitted from the final grounds for rejection. While a new grounds for rejection to include these claims was considered, the basis for this rejection was not believed to be strong enough to reopen prosecution.

***Claim Rejections - 35 USC § 103***

Claims 12-17, 19-22 and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorges in view of Materials Science and Engineering.

Gorges discloses a structural panel to be put to use in any environment (abstract, ln. 19), particularly useful as a flooring structure. The recitation of a bowling lane in the preamble and a bowling lane surface (cl. 26, ln.7) are considered functional only pertaining to the intended use of the apparatus. While features of an apparatus may be recited either structurally or

functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). There exists no known standard in the prior art for the structure that would be required for a "bowling lane". A game of bowling can take place on most any type of flat surface. In line with applicant's interpretation of "laminate, layer 20 of Gorges is a "superposed layer of one or more materials" as shown in Fig. 1.

As to claims 19,-22, 24-26 and 28, shown by Brunst is a panel used for floors (col. 1, ln. 11) which are known to be supported by joists, as such is considered to show a substructure comprising beams. Further shown is a cellular board 14, an impact stress induring layer 15 and an "impact-resistant" laminate layer 20. To the extent that "impact stress induring" and "impact-resistant" are relative terms such that everything can be described as possessing such traits relative to another material depending upon the materials and the applications, theses limitations are considered met. As shown in fig. 4, the elements of Gorges are connected together. Lastly, with respect to the recitation of a bowling lane, any floor is considered to meet this recitation of intended use. Most broadly, plastic toy pins and a ball used by a child on a floor render such a "bowling lane". As to claims 12 and 13, 14 of Gorges is considered to be "board-like".

Aluminum as called for by claim 14 and foam as called for by claims 15 and 16 is shown at col. 6, ln. 27 and reference number 21 respectively. Materials Science teaches that structural panels such as Gorges are known to be constructed and wood as more specifically called for by claim 17. Furthermore, the selection of a known material to take advantage of its known properties for an intended purpose has been held obvious. To have used to have used wood in place of the

panels of Gorges would have been obvious to have eliminated the fire resistance of the panel and to have added the known properties of wood to his panel.

As to claim 27, Gorges show the layer of the panels to have different thicknesses in different sections (col. 8, lns. 8-44).

As to claim 29, Gorges at ln. 7 of the abstract and fig. 17.16 of Material Science show the use of adhesive in composite panels. Such is clearly not new. Further Gorges shows that his panels are configured to be connected together to form for example a floor. As to the thickness and density of the board layer, the range is considered to be an obvious matter of design choice. "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). Applicant has offered no evidence of the criticality of the claimed ranges where they solve any particular problem or produce any unexpected results. The use of the proper combination of materials in composite panels in order to achieve the desired properties is well recognized. Note col. 6, ln. 7 of Gorges where "the particular materials from which the overall composite laminar panel 10 are made may vary to some extent dependent upon the environment within which the panel is to be employed". The claimed thickness and density would have been obvious as the selection of materials for an intended use.

Claims 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gorgest in view of Materials Science and Engineering and further in view of Kelly 4,337,290. Gorges does not mention fibrous material and resin the use of paper for his layers. Kelly teaches that it would

have been obvious to have used a paper impregnated with resin as a known board like material for use in creating laminates like that shown by Gorges.

***Claim Rejections - 35 USC § 103***

Claims 17-22 and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunst in view of Kelly 4,337,290.

As to claims 17-22 and 26-29, Brunst shows a substructure of beams in fig. 1 construction elements having a cellular board 21 where all wood material is considered to be a “cellular material” to meet the limitations of the claim. Further shown is a board layer 31 and 32. It is unclear whether or not Brunst shows a protective layer from his (col. 6, lns. 50-59). In any event, Kelly teaches that protective layers attached to a substrate are known. To have added the protective layer of Kelly to Brunst would have been obvious in order to make the panel more durable.

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunst in view of Kelly 4,337,290 and further in view of Stirling Re. 35,778 and Materials Science and Engineering and Turner 5,106,668.

Brunst does not mention cells having a hexagonal cross-section. Sterling teaches in bowling lanes that “sandwich-type” structures are known in to be tried in bowling. From the bottom of pg. 541 of Materials Science one can see that “honeycomb” structure is a well known to “sandwich panels”. To have replaced the panels of Brunst with the honeycomb panels of Materials Science would have been an obvious matter of replacing one known sandwich type

panel for that of another in order to take advantage of its known properties of strength, lightness, rigidity and stability. Turner teaches that it is known to design honeycomb panels such that they are resistant to impact loads (col 1, lns. 20-43).

As to claim 29, Brunst shows the use of adhesive (col. 5, ln. 38). Such is clearly not new. Further Brunst shows that his panels are configured to be connected together to form a bowling alley. As to the thickness and density of the board layer, the range is considered to be an obvious matter of design choice. "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). Applicant has offered no evidence of the criticality of the claimed ranges where they solve any particular problem or produce any unexpected results. The use of the proper combination of materials in composite panels in order to achieve the desired properties is well recognized. The claimed thickness and density would have been obvious as the selection of materials for an intended use.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunst in view of Kelly 4,337,290 and further in view of Stirling Re. 35,778 and Materials Science and Engineering and further in view of Gorges.

To have replaced the panel of Brunst with one constructed of honeycomb would have been obvious for the reasons set forth above. To have filled these cells of the honeycomb panel with a polyurethane foam would have been obvious as taught by Gorges at his 21 in order to insulate the panel.



## **(10) Response to Argument**

### **I. Claim 29 is not supported by the specification.**

This rejection has not been removed and comments directed thereto are considered moot.

### **I Gorges in view of Materials Science and Engineering.**

Appellant's opening paragraph is considered to be a mere assertion of patentability. No further comment is deemed necessary. In his subsequent paragraph he states that claim 28 "includes a bowling surface", claim 26 "sectional bowling lane" and claim 29 "'a construction element for bowling". He argues that the recitation of bowling lane or bowling surface is significant to distinguish over Gorges. Examiner cannot agree for the reasons set forth in the grounds for rejection above. The preamble of claim 29 calls for a "construction element" for a sectional bowling lane". Well settled is that such functional recitations of intended use in the preamble cannot distinguish over the art. Even appellants amendment to the claim reciting "a bowling lane surface comprising at least one impact resistant laminate..." is considered to be intended use. The scope of such a limitation can be equivalent to claiming at least one impact resistant laminate for use as a bowling lane surface. Most broadly, there is no secondary meaning to the term bowling alley. The game of bowling can be conducted on many surfaces. So the most broad meaning of a bowling alley would be any surface capable of having the game of bowling played thereon. Appended to this Answer is Lorber U.S. 3,586,325 who supports the examiner's position that a "bowling alley" can be "any selected horizontal surface in rooms" (col. 3, ln. 37). Clearly it is not unreasonable to consider a floor as any horizontal floor and, as

such, a “bowling alley”. While appellant points to both foreign classification and his specification in an attempt to show that the recitation of “bowling alley” has a specialized meaning, examiner cannot agree. As reiterated by the Board on numerous occasions, the name of the game is the claim. The claims fail to positively recite any structural features required of a bowling alley. From the preamble of claims 28 and 29 the invention is not a bowling alley but a “construction element”. Only claim 26 appears to be specifically directed to a “bowling lane” from its preamble. However, the body of the claim fails to positively recite any other features of a bowling alley. No limitation recited in the claims distinguishes them from a floor that is capable of being used for bowling. As such, the Board is asked to affirm this grounds for rejection.

In the first full paragraph of pg. 110 of his Brief, appellant states that from his specification “it is obvious that the referred to bowling lane is a professional lane”, yet he cannot so specifically where the specification recites that his invention is drawn to a professional lane. Even the examiner, one skilled in the art, does not know what is characteristic of a professional lane. Some lanes are wood boards, synthetic sheets or even gym floors. Hence, the examiner’s position is not that the recitations to bowling lane are insignificant as accused by appellant. But, that these are only intended use recitations, which fail to distinguish over the applied art. Hence, based upon that, the Board is asked to sustain this grounds for rejection.

At the bottom of pg. 10 of his Brief, Appellant argues that Gorges does not suggest a bowling lane surface that includes an impact resistant laminate layer. In making this rejection, the Board should not that most “impact resistant” is so broad as to encompass any material. The term is relative and depending upon the conditions and expectations, anything can be “impact

resistant". For example, glass is impact resistant to a feather where as a building would not be impact resistant to a wrecking ball. Clearly the copolymer of Gorges is impact resistant when subjected to many conditions. His panel is use in floors and bulkheads of ships, submarines and aircraft (col. 1,ln. 12) which would clearly exhibit resistance to impact. Appellant goes so far as to try and convince the Board that the face sheets 15 and 20 of Gorges are not laminates. This argument is incredible since Gorges himself refers to his face sheets 15 and 20 "laminar face sheets" (col. 5, ln .40). With respect to appellant's attempts to define a laminate, he is not specific on his source. The Merriam-Webster Online Dictionary defines a laminate as, "to make (as a windshield) by uniting superposed layers of one or more materials". Clearly this defines the apparatus shown by Gorges showing superposed layers of 14, 15 and 20. As such, the Board should find none of these arguments rational or convincing.

While it is true that Gorges does not mention a use as a bowling surface. He does disclose a surface that is capable of having a bowling ball rolled upon it. Since it is clear that Gorges has identical structure to the appealed claims and it is well settled that "when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed inherent (See MPEP 21112.01). As such, a prima facie case of obviousness has been established hereat by the examiner (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)). While appellant tries to convince the Board of his position using the analogy that balsa wood would not be impact resistant, such is flawed logic. Balsa wood is clearly impact resistant to falling snow. While appellant makes his analogy with respect to balsa wood and contacted by a bowling ball, one should be quick to note that the claim does not recite that the layer is impact resistant to a bowling ball (emphasis added). Since there are no limitations as to the scope of "impact resistant" the broadest interpretation is permissible and that interpretation would be that everything is impact resistant to some degree. Hence, the layer of Gorges is clearly considered to be impact resistant.

Exactly the same problems facing the recitation of "impact resistant" are with the recitation "impact stress enduring". Once again examiner is free to that the broadest interpretation that everything to some degree is impact

stress enduring. Using such an interpretation it is clear that Gorges shows and impact stress enduring layer in his face sheet that meets the limitations of appellant's claims.

With respect to Materials Science, the grounds for rejection never sets forth the it shows a bowling lane. Materials Science is applied for its teachings of materials used in the making of structural panels, more specifically the use of wood in structural panels. Clearly one skilled in the art looking to make a structural panel would consult references such as Materials Science to see which materials are best suited for his intended purpose. Hence, clearly this grounds for rejection is fair and should be sustained by the Board.

**II Claim 18 is unpatentable over Gorges in view of Materials Science and Kelly.**

In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). This piecemeal analysis merely alleges patentability without pointing to errors in the examiner's grounds for rejection. The interpretation of Georges and Materials Science are discuss above. Now claim 28 calls for one layer to be resin impregnated paper. Kelly teaches making high impact resistant laminate bowling surfaces using at least on resin impregnated paper layer. Kelley teaches that the use of crepe paper in the making of laminates more than doubles the impact resistance (col 3, Ins. 30-35). To have added a layer of resin impregnated paper to the panel element of Gorges would have clearly been obvious from the teachings of Kelly in order to increase the impact resistance of his panel. As such, the board should affirm the rejection of claim 18 as being fairly taught by the applied art.

### **III Claims 17-22 and 26-28 over Brunst and Kelly**

Brunst meets all the limitations of the claims as set forth in the grounds for rejection above except for the "protective layer". As such, the teachings of Kelly to a protective layer (col. 5, ln. 27) were applied. Such a layer would have been obvious on Brunst to add protection to the lane.

Examiner's interpretation of Brunst is that he meets the language of claims 26, 28 and 29 where they recite a "cellular board including a plurality of cells, each cell including a plurality of walls substantially traverse to the supporting structure". Examiner interpreted fig. 2 to show a cellular board 20 of wood that has a plurality of cells 21 including a plurality of walls as shown by the lines in fig. 2 in between each adjacent cell 21. The point of Appellant's digression into "plant cells" and wood being "remnants of plant cells at the bottom of pg. 13 is unclear and no further comment is deemed necessary.

With respect to members 31 and 32 of Brunst, these elements were considered to meet the limitations of the claim calling for a "board layer...attached to opposite sides of the supporting structure layer; and at least one laminate layer attached with an adhesive medium to the board layer" (from claim 29). From col. 5, ln. 33-42 of Brunst we can see that these are most broadly a "board layer" in that they are flat and have at least one laminate layer of protective thermosetting resin impregnated paper (ln. 36). Clearly these elements meet the limitations of the claims. Appellant's digression in the middle of pg. 14 into how elements 31 and 32 of Brunst resemble his "impact-resistant laminate layer" is not on point. Appellant ignores the limitations of the claims and does not argue how his language distinguishes over the prior art and the examiners interpretation of the claims in view of the prior art. As such, appellant's remarks should not persuade the Board and the grounds for rejection should be sustained. Should the Board not agree with the examiners interpretation of the claims over only Brunst and Kelly as applied to claims 17-22 and 24-29, the Board is asked to recognize the teachings of RE 35,778, Materials Science and Turner as applied to claims 12-14.

### **IV Claims 12-14 over Brunst, Kelly, 35,778, Materials Science and Turner**

At the bottom of pg. 15, appellant argues that the applied art "does not suggest replacing the plant cells in the structure by Brunst with honeycomb cells. However, this is not the grounds for rejection advanced by the examiner and the modifications to Brunst that were found obvious.

At no point did the examiner suggest replacing the “cells” of Brunst with Honeycomb. Instead the grounds for rejection recognizes that Brunst shows the use of panels to form a bowling alley. Sterling teaches that “sandwich-type” panel structures are known to bowling lanes. Honeycomb panels are well known “sandwich-type” panels with known properties and advantages such as a high strength to weight ratio and highly rigid. The grounds for rejection states that it would have been obvious to have replaced on known sandwich-type material, like that of Brunst, with that of another, like honeycomb in order to take advantage of its known properties to make a stable, light and strong bowling lane. Turner et al. teaches further that honeycomb panels can be designed to resist impact load and as a result be suitable for a bowling environment. While on pg. 16, appellant argues each reference individually, it is submitted that one cannot overcome a case of obviousness in this fashion. Clearly, one skilled in the art of bowling looking for a better panel would consider honeycomb materials which have known advantages (the main disadvantage being cost).

While appellant argues that the grounds for rejection lacks the “necessary specificity” (pg. 17, ln.8 of Brief) (whatever that may be), the Board recognizes that skill is presumed on the part of those practicing in the art. See *In re Sovish*, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985) and one must observe that an artisan must be presumed to know something about the art apart from what the references disclose (see *In re Jacoby*, 309 F.2d, 513, 516, 135 USPQ 317, 319 (CCPA 1962). In the design of honeycomb panels one skilled in the art recognizes that there are many variables, such as the material of the honeycomb, density of the cells, thickness of the panel, the facing material, thickness of the facing and the like that can be manipulated such that the panel has the desired properties suitable for its intended purpose. This

design of panels is suggested by Materials Science. Clearly one looking for a lighter panel would consider honeycomb in place or those used by Brunst and would have the skill to design that panel for its intended purpose. As such, this grounds for rejection is tenable and should be sustained by the Board.

At the top of pg. 18, appellant would like the Board to believe that one would not consider honeycomb because of buckling and warpage but fails to cite any authority. The Board should find this statement incredible in view of the known wide applications of honeycomb panels in the aerospace industry. Clearly if honeycomb was prone to buckling and warpage as alleged by appellant, one would not see such wide use. Appellant's own reference provided in the appendix of the Brief, Symposium on Recent Developments in the Study of Impacts on Composite Materials, states that honeycomb panels are used in aerospace applications "due to their high stiffness and strength ratios".

Next appellant tries to get the board to swallow the conclusion that honeycomb are vulnerable to impact and cited Symposium on Recent Developments in the Study of Impacts on Composite Materials. This article was made for Nomex type honeycomb with **thin** facesheet (0.5mm) that is commonly found on flaps of commercial aircraft. Clearly this probably is not the design of honeycomb that would be selected for use in a bowling environment due to the thinness of the facesheet and its lack of ability to protect the core. Also putting this into context, this honeycomb was considered prone to impact by 4 inch projectile traveling at 63 mph (100kph) which are conditions of velocity never inflicted by a bowling ball. To settle this issue, the Board should view the teachings of Turner where "resistance to impact (in honeycomb panels)....is achieved by increasing the thickness of the outer skin, increasing the density of the

honeycomb....” (col. 1, ln. 33-35). Turner teaches how to design “cellular structural material” (col. 1, ln. 6) for applications “such as flooring” (ln. 19)...can be expected to receive stress from ...dropping of objects (ln. 21). Contrary to appellant’s reference, Sterling recognizes in aerospace, the flooring panels “must tolerate drop impacts (ln. 27). Even the “leading edges of airfoils...can experience high-impact loads upon collision with small objects” (ln. 27). Clearly from Turner one skilled in the art knows how to design honeycomb panels to be impact resistant by design such as increasing the density of the honeycomb or the thickness of the outer skin. Hence, appellant has done nothing more than apply known materials for its intended purpose and the grounds for rejection should be sustained.

Clearly from the applied art, particularly in view of the discussion above with respect to the teachings of Sterling, one would consider honeycomb panels as viable substitutes for the panels shown by Brunst. When designed properly for their intended application, they are NOT prone to impact and do not buckle or warp. What appellant’s have invented is a bowling alley that is light weight and stable which is what is expected of the known properties of honeycomb panels. The use of panels in general to construct a bowling alley such that it is inexpensive, easily assembled and disassembled are clearly shown by Brunst.

The citation of *Burke* by appellant on the bottom of pg. 19 is not on point. The instant claims have recited a combination of elements that are fairly taught as combinable by the applied art. As such they are not considered patentable.

As to *Ex parte Hiyamizu*, the grounds for rejection goes way beyond just showing that honeycomb panels are known. The applied art teaches that such “sandwich” materials are known in bowling and how to design panels to suit their intended application. Further the prior



art teaches the high strength, light weight, stable and ability to be designed to withstand impact by increasing the density of the honeycomb or thickness of the face sheet in honeycomb panels make them a suitable material to replace the panels shown by Brunst. Clearly this case is not on point with the issues before the Board.

The arguments in the last two paragraph of pg. 20, are not considered on point and no further comment is deemed necessary.

**V Claims 15 and 16 over Brunst, Kelley, Stirling, Materials Science and Gorges**

Appellant reiterates previous arguments already responded to above. However, he acknowledges at the bottom of pg. 21 that Gorges teaches foam fillers in honeycomb panels. Clearly one considering designing a panel for use in a bowling alley would consider the teachings of Gorges and desire to "insulate" the panel to quiet it in its intended environment. In view of these clear and admitted teaching of the prior art, the Board is asked to affirm the grounds for rejection.

Appellant in the middle of pg. 22 asserts that his invention is a new way of thinking. But it is not. Brunst shows that making bowling alleys of assembled panels is known. Turner and Materials science teaches designing lightweight, strong and stable panels of honeycomb that would be suitable for an intended purpose. Appellant provides no evidence that there were "no commercially available modular panels....suitable for a bowling alley". Clearly the modular panels of Brunst are one such panel that is available. The use of honeycomb has by and large been an exotic and expensive material and not had much application due to cost. This probably would account for any lack of availability in the bowling world. However, more cost effective honeycomb products may make their application to a bowling lane more viable. Hence, since these arguments are based on speculation and not on any facts or evidence of record, the Board should not be persuaded and should maintain the grounds for rejection.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/William Pierce/ Primary Examiner 3711

Conferees:



Gene Kim

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Xuan Thai

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